



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,812	10/11/2006	Gabi Breuel	095309.57496US	4883

23911 7590 02/28/2008  
CROWELL & MORING LLP  
INTELLECTUAL PROPERTY GROUP  
P.O. BOX 14300  
WASHINGTON, DC 20044-4300

EXAMINER
----------

NGUYEN, CUONG H

ART UNIT	PAPER NUMBER
----------	--------------

3661

MAIL DATE	DELIVERY MODE
-----------	---------------

02/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/572,812

**Applicant(s)**

BREUEL ET AL.

**Examiner**

CUONG H. NGUYEN

**Art Unit**

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 3/22/06 (an IDS).
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17, 20, 25 and 32 is/are rejected.
- 7) ☒ Claim(s) 18, 19, 21-24, 26-31 and 33 is/are objected to.
- 8) ☒ Claim(s) 17-33 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

***DETAILED ACTION***

1. This is the answer to an IDS and a pre-amendment filed on 3/22/2006.
2. Claims 17-33 are pending; claims 1-16 were canceled.

***Priority***

3. Applicants claim a Germany priority of 23 Sept. 2003

***Information Disclosure Statement***

4. An IDS was filed on 3/22/2006; and it is considered by the examiner.

***Claim Rejections - 35 USC § 112***

5. Claims 17, 20, 25, and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Claims 17, 20, 25, and 32 are directed to a method/device for detecting lane changing operation for a vehicle, comprising a vague step, having:

- "...the probability of an imminent lane change of the other vehicle,..." lacks an antecedent basis (a probability was not yet defined) (see pending claim 17, lines 7-8).
- "...in direction orthogonal to a tangent to the path followed by its roadway lane." lacks an antecedent basis (a path was not yet defined) (see pending claim 20, lines 1-4).
- "...allowance for the variance of the at least one observation variable..." lacks an antecedent basis (a variance was not yet defined) (see pending claim 25, line 2).
- "..... a lane changing intention of the other vehicle on the basis of a roadway lane..." lacks an antecedent basis ("a basis of a roadway lane" was not defined

before) (see pending claim 32, line 6).

6. Dependent claims 18-19, 21-24, 26-31, and 33 are objected because of dependencies.

***Election/Restriction***

7. After carefully consideration, the election to one of the following invention is deemed necessary. The delay of this requirement is also regretted by the examiner of record.

8. Restriction to one of the following inventions is required under 35 U.S.C. § 121;

I. Claims 17-31, are drawn to a method for detecting lane changing operations for a vehicle, comprising steps of determining variables to predict a vehicle's lane change, classified in US class 701, subclass 200.

II. Claims 32-33 are drawn to a device for detecting lane changing operations for an object, comprising physical units to detect a change of object's variables, classified in class 701, subclass 301.

9. The inventions are distinct, each from the other because of the following reasons:

Inventions Group II and Group I are related as product and process of use said product. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the device as claimed can be used for monitoring/checking a driver's behavior on a road such as a zigzag driving pattern – not necessary of performing claimed steps on a vehicle for lane changing prediction purposes.

10. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Applicants are advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR § 1.143)

From the above analysis, pending claims are clearly directed to different claimed subject matters encompassing different areas of searches.

There would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classifications;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicants are advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be

traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse (the previous response does not include an election). To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicants must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicants must indicate which of these claims are readable upon the elected invention.

Should applicants traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

11. Upon allowance of the generic claim the restricted claims will also be allowed in a rejoinder.

12. Note: Comparing to the closest pertinent disclosure, Applicants broadly claim “a lane changing variable” – this kind of language is very broad comparing to what applicants actually disclose: e.g., a steering angle is considered as a lane changing variable (this is

not disclosed by applicants).

See para. [0008]: “The lane changing variable advantageously relates to swerving of the observed other vehicle into a roadway lane assigned to the driver's own vehicle, so that the swerving in operations of the other vehicle can be detected at an early time” (the examiner submits that how to represent “a swerving characteristic” in order to use it in the disclosure?).

See para. [0010]: “One of the most important features for the detection of a lane changing intention is the lateral dynamic behavior of the observed other vehicle in relation to the path followed by its roadway lane. It is accordingly of advantage if a first observation variable is a lane offset variable which describes the lateral shift of the other vehicle in relation to the center of its lane on the roadway, and/or a second observation variable is a lane offset alteration variable which describes a lateral velocity of the other vehicle in the orthogonal direction in relation to a tangent to the path followed by its roadway lane, and/or a third observation variable is a lateral offset acceleration variable which describes a maximum occurring lateral acceleration of the other vehicle on the basis of an imminent lane change”; (the examiner submits that how to represent “a lateral offset acceleration variable” and use that variable to detecting a lane change in the disclosure?).

See para. [0011]: “Further important features result, on the one hand, from geometrical properties which the path followed by the roadway lane driven by the observed other vehicle has and, on the other hand, from characteristic time intervals which occur between the observed other vehicle and roadway markings which are provided on the surface of the roadway and define the path followed by the roadway lane of the other vehicle. With regard to an exact determination of the lane changing variable, a fourth

observation variable may therefore be a lane curvature variable, which describes a curvature of the path followed by the roadway lane of the other vehicle, and/or a fifth observation variable may be a lane crossing time variable, which describes that period of time which is expected to elapse before a roadway marking delimiting the roadway lane of the other vehicle is crossed"; (the examiner submits that how to represent "a lane curvature variable" in the disclosure?).

See para. [0012]: "To allow particularly those lane changing operations that lead to potentially dangerous swerving of the observed other vehicle into a gap between the driver's own vehicle and the leading vehicle to be described as accurately as possible, it is of advantage if observation variables which describe the spatial and temporal behavior of the observed other vehicle in relation to the gap between the vehicles are determined. In this connection, a sixth observation variable may be a gap distance variable, which describes a distance of the other vehicle in relation to the gap between the vehicles, and/or an eighth observation variable may be a gap relative velocity variable, which describes a velocity of the other vehicle in relation to the gap between the vehicles, and/or a seventh observation variable may be a gap relative acceleration variable, which describes an acceleration of the other vehicle in relation to the gap between the vehicles".

See para. [0016]: "If an imminent lane change of the observed other vehicle is deduced by evaluation of the lane changing variable, driver-independent interventions in the vehicle's equipment provided for influencing the longitudinal and/or lateral dynamics of the driver's own vehicle can be performed in such a way that the possible eventuality of getting dangerously close to the other vehicle caused by the lane change is averted by appropriate adaptation of the longitudinal velocity and/or the traveling direction of the



driver's own vehicle”.

See para. [0057]: “The intermediate variables determined in the intermediate nodes 12a to 12c are then combined in an output node 13a, which forms a third level 13 of the probabilistic network, to form a common output variable in the form of a lane changing variable CV in such a way that the latter describes a swerving in probability for an imminent swerving in operation of the ith observed other vehicle 15” (the examiner submits that how to represent “a swerving characteristic” in order to use that feature in calculation in the disclosure?).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CUONG H. NGUYEN whose telephone number is 571-272-6759 (email address: cuong.nguyen@uspto.gov). The examiner can normally be reached on 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, THOMAS G. BLACK can be reached on 571-272-6956. The Rightfax number for the organization where this application is assigned is 571-273-6956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Serial No. 10/572,812  
Art Unit 3661

Please provide support, with page and line numbers, for any amended or new claim in an effort to help advance prosecution; otherwise any new claim language that is introduced in an amended or new claim may be considered as new matter.

/CUONG H. NGUYEN/  
Primary Examiner